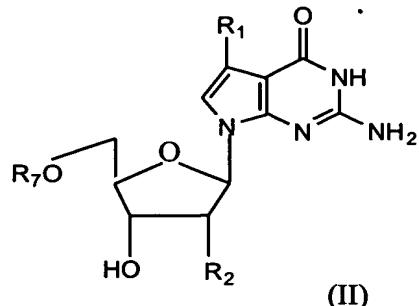


What is claimed is:

CLAIMS

1. Molecule comprising the following moiety:



5 wherein R₁ is C₁₋₁₀ alkyl group optionally substituted by hydroxyl, amino, C₁₋₄ alkoxy or halo; and R₂ is hydrogen or hydroxyl and R₇ is H or a mono-, di-, or tri-phosphate or thiophosphate thereof.

2. The molecule of claim 1, wherein said molecule
10 is a nucleic acid polymer.

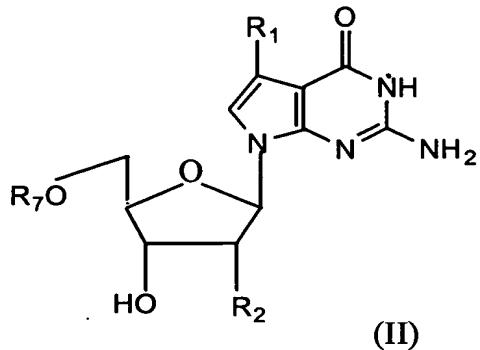
3. The molecule of claim 2, wherein said nucleic acid is DNA.

4. The molecule of claim 2, wherein said nucleic acid is RNA.

5. Method for determining the nucleotide base sequence of a DNA molecule comprising the steps of:

5

incubating a DNA molecule annealed with a primer molecule able to hybridize to said DNA molecule in a vessel containing, a molecule comprising the following moiety:



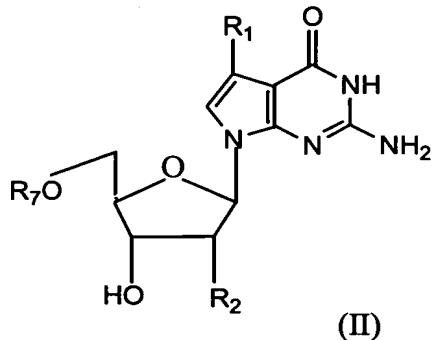
wherein R₁ is C₁₋₁₀ alkyl group optionally substituted by hydroxyl, amino, C₁₋₄ alkoxy or halo; R₂ is hydrogen or hydroxyl; and R₇ is a tri-phosphate or thiophosphate thereof, a DNA polymerase and at least one DNA synthesis terminating agent which terminates DNA synthesis at a specific nucleotide base in an incubating reaction; and

10

separating DNA products of the incubating reaction according to size whereby at least a part of the nucleotide base sequence of said DNA molecule can be determined.

6. Method for elongation of an oligonucleotide sequence comprising the step of;
incubating an oligonucleotide sequence with a molecule comprising the following moiety:

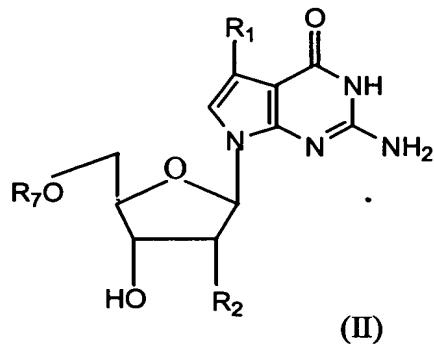
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10

wherein R₁ is C₁₋₁₀ alkyl group optionally substituted by hydroxyl, amino, C₁₋₄ alkoxy or halo; R₂ is hydrogen or hydroxyl; and R₇ is a tri-phosphate or thiophosphate thereof, and a DNA polymerase such that said molecule is added to the oligonucleotide sequence.

7. A compound of the formula (II):



wherein R₁ is a C₁₋₁₀ alkyl group optionally substituted by hydroxy, amino, C₁₋₄ alkoxy or halo; R₂ is hydrogen or

5 hydroxy; and R₇ is H or a mono-, di- or tri-phosphate or thiophosphate thereof, except that when R₁ is methyl R₇ is not H.

8. A compound according to claim 7 wherein R₁ is a C₂₋₈ alkyl group.

10 9. A compound according to any one of the claims 7 or 8 wherein the compound of the formula (II) is present as a triphosphate.

10. 7-Ethyl-7-deaza-2'-deoxyguanosine or a mono-, di- or tri-phosphate thereof.

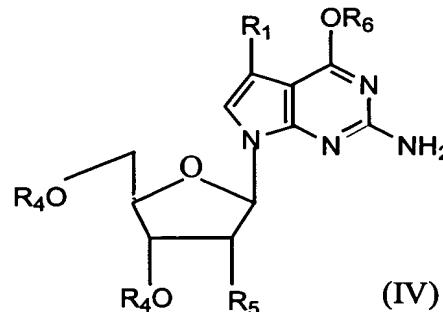
15 11. Propyl-7-deaza-2'-deoxyguanosine or a mono-, di- or tri-phosphate thereof.

12. 7-Hydroxymethyl-7-deaza-2'-deoxyguanisine or a mono-, di- or tri-phosphate thereof.

13. A triphosphate of a compound according to any one of claims 10, 11 or 12.

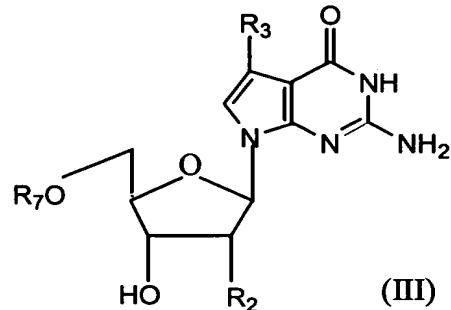
5 14. A process for the preparation of a compound of the formula (II) wherein R₁ is a C₁₋₁₀ alkyl group optionally substituted by hydroxy, amino, C₁₋₄ alkoxy or halo; R₂ is hydrogen or hydroxy; and R₇ is H or a mono-, di- or tri-phosphate or thiophosphate thereof, except
10 that when R₁ is methyl R₇ is not H, which comprises:

(i) the deprotection of a compound of the formula (IV) :



15 wherein R₁ is a C₁₋₁₀ alkyl group optionally substituted by hydroxy, amino, C₁₋₄ alkoxy or halo and R₄ is a protecting group, R₅ is hydrogen or a group OR₄ and R₆ is a protecting group which is the same or different to R₄, or

(ii) when R₁ is other than methyl the reduction of a compound of the formula (III)



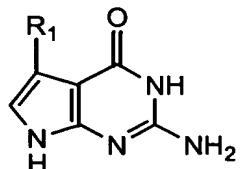
wherein R₂ is hydrogen or hydroxy, R₃ is a C₂₋₁₀ alkynyl group optionally substituted by hydroxy, amino, C₁₋₁₄ alkyl substituted amino, C₁₋₄ alkoxy or halo, and R₇ is H or a mono-, di- or tri-phosphate or thiophosphate thereof;

(iii) and optionally thereafter preparing a mono-, di- or triphosphate or thiophosphate.

15. A nucleotide sequence containing a compound of the formula (II).

00100100-00100100

16. A deoxyribonucleic acid sequence containing a base of the formula:



(IIA)

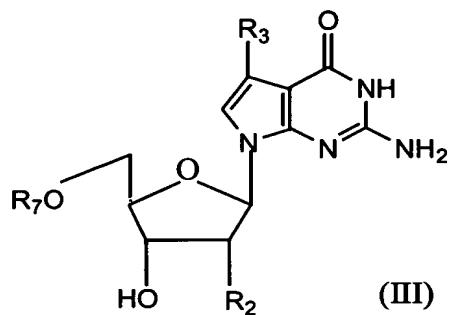
wherein R₁ is a C₁₋₁₀ alkyl group optionally substituted by hydroxy, amino, C₁₋₄ alkoxy or halo.

17. Method for determining the nucleotide base sequence of a DNA molecule comprising the steps of:
incubating a DNA molecule annealed with a primer molecule able to hybridize to said DNA molecule in a vessel containing a compound of formula (II) wherein R₁ is a C₁₋₁₀ alkyl group optionally substituted by hydroxy, amino, C₁₋₄ alkoxy or halo; R₂ is hydrogen or hydroxy; and R₃ is tri-phosphate or thiophosphate thereof, a DNA polymerase and at least one DNA synthesis terminating agent which terminates DNA synthesis at a specific nucleotide base in an incubating reaction; and
separating DNA products of the incubating reaction according to size whereby at least a part of the nucleotide base sequence of said DNA molecule can be determined.

18. Method for elongation of an oligonucleotide sequence comprising the step of;

incubating an oligonucleotide sequence with a compound of formula (II) wherein wherein R₁ is a C₁₋₁₀ alkyl group optionally substituted by hydroxy, amino, C₁₋₄ alkoxy or halo; R₂ is hydrogen or hydroxy; and R₇ is tri-phosphate or thiophosphate thereof and a DNA polymerase such that said compound is added to the oligonucleotide sequence.

19. A compound of the formula (III):



wherein R₂ is hydrogen or hydroxy and R₃ is a C₂₋₁₀ alkynyl group optionally substituted by hydroxy, amino, C₁₋₄ alkyl substituted amino, C₁₋₄ alkoxy or halo, and R₇ is a mono-, di- or tri-phosphate or thiophosphate thereof.